

LISTING OF CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (Previously Presented) A printing machine comprising:

an ink reservoir;

an ink supply source; and

at least one ink delivery path connecting said ink reservoir to said ink supply source so that ink from said ink supply source can be supplied via said ink delivery path to said ink reservoir and accumulated therein for printing,

at least one ink mechanism that removes ink remaining in said ink delivery path, said ink removal mechanism including an air supply which supplies air into said ink delivery path with at least one of a flow rate and a flow volume sufficiently large enough so that the air flows toward said ink supply source in a direction away from said ink reservoir and so removes ink remaining on an inner surface of said ink delivery path,

said ink delivery path including at least one ink supply tubing for supplying ink from said ink supply source to said ink reservoir, and at least one ink recovery tubing for recovering ink from said ink reservoir and returning the ink to said ink supply source,

each of said at least one ink supply tubing and said at least one ink recovery tubing comprising an ink transfer mechanism which transfers ink between the ink reservoir and said ink supply source in one direction and another direction opposite to the one direction, and said air supply,

whereby at least one of (a) said ink supply tubing serves as an ink recovery tubing and (b) said ink recovery tubing serves as an ink supply tubing.

2. (Currently Amended) A printing machine comprising:

an ink reservoir;

an ink supply source; and

at least one ink delivery path connecting said ink reservoir to said ink supply source so that ink from said ink supply source can be supplied via said ink delivery path to said ink reservoir and accumulated therein for printing;

an air supply which supplies air into said ink delivery path with at least one of a flow rate and a flow volume sufficiently large enough so that the air flows toward said ink supply source in a direction away from said ink reservoir and so removes ink remaining on an inner surface of said ink delivery path,

said air supply serving to transfer ink between said ink reservoir and said ink supply source via said ink delivery path at least one of (a) before and (b) during the printing operation, while said air supply removes ink remaining ~~in~~ on the inner surface of said delivery path for reuse after the printing operation ink is recovered from said ink reservoir to said ink supply source.

3. (Previously Presented) The printing machine according to Claim 1, wherein said ink removal mechanism further includes at least one diluting liquid supply that supplies liquid in said ink delivery tubing such that the liquid flows toward said ink supply source from said ink reservoir in order to dilute said ink remaining therein.

4. (Previously Presented) The printing machine according to Claim 3, wherein said ink removal mechanism further includes at least one of a viscometer for detecting the viscosity of said ink being removed from said ink delivery tubing, and at least one adjusting mechanism that adjusts the amount of diluting liquid supplied by said diluting liquid supply in response to the viscosity detected by said viscometer.

5. (Previously Presented) The printing machine according to Claim 2, wherein said air supply comprises air flow tubings connected to be in fluid communication with said ink delivery path in close proximity to opening ends thereof adjacent to said ink supply source, and an air suction unit disposed within said air flow tubings for sucking air down from said ink delivery path by virtue of air flow passing through said air flow tubings.

6. (Previously Presented) The printing machine according to any one of Claims 1 to 3, wherein said air supply comprises an air/gas introducer which introduces air/gas into said ink delivery path in close proximity to the opening ends thereof adjacent to said ink supply source.

7. (Previously Presented) The printing machine according to Claim 3, wherein said diluting liquid supply comprises diluting liquid tubings connected to be in fluid communication with said ink delivery path in close proximity to the opening ends thereof adjacent to said ink reservoir, and a diluting liquid source connected to said diluting liquid tubings, respectively.

8. (Cancelled)

9. (Previously Presented) The printing machine according to Claim 1, wherein said ink reservoir is formed by an inking roller which applies said ink to a printing die, an ink squeezing member extending along the axis of said inking roller in contact with the same for the adjustment of the amount of said ink being applied to the printing die, and a pair of diaphragms or dam plates disposed at common end extremities of said inking roller and said ink squeezing member,

comprising a driving mechanism which moves said opening ends of said ink delivery path adjacent to said ink reservoir along said axis of the inking roller.

10. (Currently Amended) A method for supplying/recovering ink wherein said ink is supplied and/or recovered via at least one of ink delivery tubings connected between an ink reservoir and an ink supply source,

wherein the method includes the steps of:

supplying a fast enough flow rate and/or strong enough flow volume of air into said ink delivery tubings so that the air flows toward said ink supply source in the direction away from said ink reservoir, and the step of supplying a diluting liquid in said ink delivery tubings intermittently such that the liquid flows toward said ink supply source from said ink reservoir, wherein both of said supplying steps occur simultaneously in order to recover said ink remaining on the inner surface of said ink delivery tubings;

detecting the viscosity of said ink being removed from said ink delivery tubings;

and

adjusting the amount of said diluting liquid in response to the viscosity detected by said step of detecting.

11-12. (Cancelled).

13. (Original) A preparation method for changing printing color, wherein the printing machine used for the method comprises an ink reservoir being formed by an inking roller which applies said ink to a printing die and an ink squeezing member extending along the axis of said inking roller in contact with the same for adjustment of the amount of said ink being applied to the printing die,

an ink supply source for supplying ink to said ink reservoir, and

one or more ink delivery tubings each connecting said ink reservoir to said ink supply source, whereby the ink supplied from said ink supply source via at least one of said ink delivery tubings to said ink reservoir and accumulated therein is used for printing, and thereafter the printing color is changed by replacing said ink supply source for a successive printing step using a different color,

the method comprising the step of supplying said ink from said ink supply source to said ink reservoir via at least two of said ink delivery tubings,

using at least one of said ink delivery tubings for supplying said ink from said ink supply source to said ink reservoir, while using at least one of the other of said ink delivery tubings for recovering said ink from said ink reservoir and returning it back to said ink supply source, whereby said ink is circulated between said ink supply source and said ink reservoir, and said ink accumulated in said ink reservoir is used for printing,

using all of said ink delivery tubings in order to recover said ink from said ink reservoir and return it back to said ink supply source, while at the same time rotating said inking roller, so that remaining ink in said ink reservoir is recovered and returned back to said ink supply source,

supplying a diluting liquid onto the surface of said inking roll, thereby removing or rinsing out said ink from the surface thereof,

recovering said ink from said ink delivery tubings and returning it back to said ink supply source, by supplying a fast enough flow rate and/or strong enough flow volume of air into said at least two of ink delivery tubings such that the air flows toward said ink supply source in the direction away from said ink reservoir,

replacing said ink supply source in which remaining ink has been recovered therein with an ink supply source of another color.

14. (Previously Presented) A printing machine as in claim 1, wherein said ink recovery tubing can both supply and recover ink.